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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/785,535	Applicant(s) MARGOLUS ET AL.	
	Examiner HUNG Q. PHAM	Art Unit 2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-10,12-60,62-67,98-159 and 175-189 is/are pending in the application.
- 4a) Of the above claim(s) 98-153 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-10,12-60,62-67,154-159 and 175-189 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/25/2005 has been entered.

Response to Arguments

Applicants have amended claims 1, 183 and 185. The previous rejection of claim 1 and 185 under 35 U.S.C. § 112, first paragraph, and the objection of *NFS file server* and *CIFS file server* to the specification of claim 183 has been withdrawn.

Applicant's arguments of claim 1 with respect to the rejection under 35 U.S.C. § 103 have been considered but are moot in view of the new ground(s) of rejection.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: *physical storage nodes* (claim 178).

Claim Objections

Claims 33, 36, 41, 47, 49 and 63 are objected to because of the following informalities: *the client, the repository maintainers, the shared data item*. Appropriate correction is required.

Election/Restrictions

This application contains claims 98-153 drawn to an invention nonelected without traverse in Paper file on 05/09/2003. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 187 and 188 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As in claim 1, the step of *storing the second data item in the data repository if comparing establishes that a data item identical to the second data item is not already stored in the data repository* was not described in the specification.

As in claim 187, the claimed *a plurality of clients each of which has initiated a process to deposit an identical data item all share read access to a single repository data-item* was not described in the specification.

As in claim 188, the claimed *clients which has not initiated a process for depositing the identical data item do not possess a credential that authorizes them to read the identical data item* was not described in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 9, 10, 12-17, 19, 48, 50, 51, 54-56, 60, 158, 159, 175-178, 180-185 and 187-189 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Farber et al. [USP 5,978,791].

Regarding claim 1, Farber teaches *a method by which more than one client program connected to a network stores the same data item at the same location in a data repository connected to the network* (As in FIG. 1A, Col. 5, Lines 3-16, *more than one client program connected to a network are* illustrated. As in the Abstract, the method of *storing the same data item at the same location in a data repository connected to the network* is illustrated). The Farber method comprising the steps of:

having a first client program deposit a data item in a data repository (A file is either a simple data item or compound data item (Col. 5, Lines 47-49). A scratch file is a recently received, created or modified file that does not have a True Name (Col. 7, Lines 43-46). The scratch file is assimilated to add to the True File Registry 16 (Col. 14, Lines 40-45). As seen, the technique as discussed performs the step of *having a first client program*, e.g., the program that initiate receiving, creating or modifying a file, *deposit a data item*, e.g., receiving a simple or compound data item, *in a data repository*, e.g., True File Registry 16);

determining a digital fingerprint from the data item using a reproducible pseudorandom process that produces digital fingerprints having a pseudorandom distribution (Col. 14, Lines 51-53, True Name or *digital fingerprint* for each simple data item or compound data item is determined using *a reproducible pseudorandom process that produces digital fingerprints* e.g., Message Digest function as illustrated at Col. 12, Line 55-Col. 13, Line 9. The True Name as *digital fingerprint* has *a pseudorandom distribution*, e.g., True Name is used to represent each entry of True File Registry 16 as illustrated at Col. 9, Lines 35-45);

storing the data item in the data repository at a physical location or locations associated with the digital fingerprint (Col. 14, Lines 43-45, and Line 54, after the assimilation process, data item is added to an entry of True File registry 126, wherein an entry is identified by True Name, *as storing the data item in the data repository at a physical location associated with the digital fingerprint*);

having a second client program initiates a process for depositing second data item in the data repository (As illustrated at Col. 5, Lines 3-16, system 100 comprises multiple processor 102.

Thus, at another particular time, after a particular multiple processor 102 storing data item in True File registry 126 as discussed above, another processor 102 as *a second client program initiates a process for depositing* its simple data item or compound data item as *second data item in the Data Repository* as discussed with respect to the first client program above);

determining a digital fingerprint from the second data item using the reproducible pseudorandom process (Col. 14, Lines 51-53, True Name or *digital fingerprint* for each simple data item or compound data item is determined using *a reproducible pseudorandom process that produces digital fingerprints* e.g., Message Digest function as illustrated at Col. 12, Line 55-Col. 13, Line 9);

comparing the digital fingerprint from the second data item to digital fingerprints for data items already stored in the data repository, and determining from the comparing of digital fingerprints, without comparing the entire contents of the second data item to the entire contents of a data item already stored, whether a data item identical to the second data item is already stored in the data repository (FIG. 11, step S232, Col. 14, Lines 53-63);

storing the second data item in the data repository if comparing establishes that a data item identical to the second data item is not already stored in the data repository (Col. 14, Lines 61-67), and

not storing the second data item in the data repository if comparing establishes that a data item identical to the second data item is already stored in the data repository (Col. 14, Lines 53-59);

wherein the reproducible pseudorandom process produces a digital fingerprint designed to probabilistically guarantee to provide a unique digital fingerprint for every distinct data item sent to the repository (Col. 13, Lines 3-6);

wherein the pseudorandom distribution of the digital fingerprints introduces pseudorandomness into the physical locations at which data items are stored in the data repository (As discussed above, True Names as *digital fingerprints* are distributed to True File Registry 16. A True Name is a series of bits value and used to represent an entry of True File Registry 16 as illustrated at Col. 9, Lines 35-45 and Col. 14, Lines 10-11, 28-31. Two different True Names represent two different entries. Thus, a location in Registry 16 is pseudorandom. In different works, *the pseudorandom distribution of the digital fingerprints introduces pseudorandomness into the physical locations at which data items are stored in the data repository*).

Regarding claim 9, Farber teaches all of the claimed subject matter as discussed above with respect to claim 1, Farber further discloses *one or more additional copies or other forms of redundant information about the data items is stored in the data repository for data integrity, availability, or accessibility purposes and not to provide separate storage of the data item for different client programs* (Col. 34, Line 63-Col. 35, Line 10).

Regarding claim 10, Farber teaches all of the claimed subject matter as discussed above with respect to claim 1, and further discloses the step of *associating the*

data item with each of a plurality of access-authorization credentials, each of which is uniquely associated with a particular user or client program (Col. 9, Line 35-Col. 10, Line 10, and FIG. 9, True Name).

Regarding claim 12, Farber teaches all of the claimed subject matter as discussed above with respect to claim 10, Farber further discloses the step of *storing a plurality of named objects* (Col. 9, Lines 35-66, each record is a name object), *each named object comprising information representative of the data item paired with information representative of one of the access-authorization credentials* (FIG. 9, Licensee, True Name).

Regarding claim 13, Farber teaches all of the claimed subject matter as discussed above with respect to claim 12, Farber further discloses *the information representative of the data item is a digital fingerprint* (FIG. 9, True Name).

Regarding claim 14, Farber teaches all of the claimed subject matter as discussed above with respect to claim 12, Farber further discloses *the information representative of the access authorization credential is a cryptographic hash of all or part of the access-authorization credential* (FIG. 9, True Name).

Regarding claim 15, Farber teaches all of the claimed subject matter as discussed above with respect to claim 14, Farber further discloses *the cryptographic hash is an access identifier that uniquely identifies the data item for a particular user or client program* (FIG. 9, and Col. 14, Lines 40-67).

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Regarding claim 16, Farber teaches all of the claimed subject matter as discussed above with respect to claim 12, Farber further discloses *the named object is a data structure created by the client program* (Col. 7, Lines 43-50).

Regarding claim 17, Farber teaches all of the claimed subject matter as discussed above with respect to claim 12, Farber further discloses *the named object is a data structure created by a server program acting on behalf of the repository* (Col. 9, Lines 35-66).

Regarding claim 19, Farber teaches all of the claimed subject matter as discussed above with respect to claim 12, Farber further discloses *a client retrieving a data item by accessing a named object using an access-authorization credential to select the named object, and using the contents of the named object to determine the location of the data item in the data repository* (Col. 21, Lines 29-63).

Regarding claim 48, Farber teaches all the claimed subject matters as discussed in claim 1, Farber further discloses *the client program using the repository is a mirroring program which determines which data items to deposit in the repository, and wherein that determination is based at least in part on the result of a comparison of digital fingerprints establishing that certain data items are not in the repository* (Col. 36, Lines 42-54).

Regarding claim 50, Farber teaches all the claimed subject matters as discussed in claim 48, Farber further discloses *the default for deciding what data items to mirror is to mirror all or substantially all data items* (Col. 36, Lines 42-54).

Regarding claim 51, Farber teaches all the claimed subject matters as discussed in claim 48, Farber further discloses the step of *making a determination of which data items need to be transmitted to the repository, and wherein that determination is based primarily on a comparison of digital fingerprints for data items at the client and data items in the repository* (Col. 36, Lines 42-54).

Regarding claim 54, Farber teaches all the claim subject matters as discussed above with respect to claim 12, Farber further discloses *a data item is represented as a composite of data-items, and the component data-items are separately deposited in the repository* (Col. 14, Lines 12-67).

Regarding claim 55, Farber teaches all the claim subject matters as discussed above with respect to claim 54, Farber further discloses *lists of fingerprints for data-items making up a composite data-item are deposited as an index data item, which can be given an object-name and used for obtaining access to any of the component data-items* (Col. 9, Line 35-Col. 10, Line 10).

Regarding claim 56, Farber teaches all the claim subject matters as discussed above with respect to claim 55, but does not disclose *a proof-of-deposit is returned for each component deposit, and some or all of the proofs are presented when the index data item is given an object-name*. However, a message return to a user when the process is finished is well known in the art, and similar to the message disclosed in Col. 15, Lines 17-19. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to include a proof of deposit in order to notify a user a process is completed.

Regarding claim 60, Farber teaches all the claim subject matters as discussed above with respect to claim 15, Farber further discloses *the physical location at which information about named-objects is stored is based on access identifiers to introduce reproducible pseudorandomness into the physical locations of the items* (Col. 9, Lines 35-45, entries of True File registry 126 are represented by True Names that are selected by Message Digest function).

Regarding claim 158, Farber teaches all the claimed subject matters as discussed in claim 48, Farber further discloses *a mirroring capability for a personal computer, and mirroring software for carrying out the method is initially configured to mirror essentially all data on the user's computer* (FIG. 1A, Col. 36, Lines 42-67).

Regarding claim 159, Farber teaches all the claimed subject matters as discussed in claim 48, but does not explicitly teach *a mirroring capability for a wireless network device*. However, a wireless network device such as a computer is well known in the art. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Shnelvar and Whiting technique by including a wireless network device in order to back up data from a wireless node.

Regarding claim 175, Farber teaches all the claim subject matters as discussed above with respect to claim 1, Farber further discloses *different physical locations comprise different hard disk drives* (FIG. 1A).

Regarding claim 176, Farber teaches all the claim subject matters as discussed above with respect to claim 1, Farber further discloses *different physical locations each comprise one or more different data servers* (FIG. 1A).

Regarding claim 177, Farber teaches all the claim subject matters as discussed above with respect to claim 1, Farber further discloses *the physical location each comprise one or more different processors* (FIG. 1A).

Regarding claim 178, Farber teaches all the claim subject matters as discussed above with respect to claim 1, Farber further discloses *the data repository comprises physical storage nodes linked by a network* (FIG. 1A).

Regarding claim 180, Farber teaches all the claim subject matters as discussed above with respect to claim 1, Farber further discloses *the first and second client programs are independent programs* (FIG. 1A, Col. 7, Lines 43-50).

Regarding claim 181, Farber teaches all the claim subject matters as discussed above with respect to claim 180, Farber further discloses *the independent programs are running on separate computers* (FIG. 1A, Col. 7, Lines 43-50).

Regarding claim 182, Farber teaches all the claim subject matters as discussed above with respect to claim 1, Farber further discloses *the first and second client programs are the same program running at different times* (FIG. 1A, Col. 7, Lines 43-50).

Regarding claim 183, Farber teaches all the claim subject matters as discussed above with respect to claim 1, Farber further discloses *the first client program comprises a file server* (Col. 7, Lines 37-42).

Regarding claim 184, Farber teaches all the claim subject matters as discussed above with respect to claim 1, Farber further discloses *files and directories are named objects within the data repository* (Col. 5, Lines 45-54).

Regarding claim 185, Farber teaches all the claim subject matters as discussed above with respect to claim 1, Farber further discloses *a structured item is split up into a plurality of data items with the divisions occurring at content dependent boundaries* (Col. 14, Lines 13-31).

Regarding claim 187, Farber teaches all of the claimed subject matter as discussed above with respect to claim 1, Farber further discloses *a plurality of clients each of which has initiated a process to deposit an identical data item all share read access to a single repository data-item* (During the process of depositing a data item as discussed in claim 1, an identical data item is determined by comparing True Name, and users all share read access to a

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single repository data item as illustrated at Col. 33, Line 65-Col. 34, Line 3, and True File registry 126 at Col. 9, Line 35-Col. 10, Line 10).

Regarding claim 188, Farber teaches all of the claimed subject matter as discussed above with respect to claim 187, Farber further discloses *clients which have not initiated a process for depositing the identical data item do not possess a credential that authorizes them to read the identical data item* (If the system is peer-to-peer (Col. 5, Lines 12-15), the computer does not receives the identical data item determined by comparing True Name will not have Licensee as in Col. 12, Lines 1-8).

Regarding claim 189, Farber teaches all of the claimed subject matter as discussed above with respect to claim 187, Farber further discloses *a reference count that reflects the number of clients that share read access to the single repository data-item has transitioned to zero and the storage space associated with the shared repository data-item is reclaimed* (Col. 19, Lines 5-19).

Claims 18, 20-30, 32-39, 47, 52, 53, 57, 58, 154-156 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791], as applied to claims 1, 10, 12, 56 above, and further in view of Whiting et al. [USP 5,778,395].

Regarding claim 18, Farber teaches all the claimed subject matters as discussed in claim 12, but fails to disclose *a client replacing an existing version of a named object with a new version of that named object, by replacing the existing association with a data item stored in the data repository*

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with a new association. Whiting teaches a method for backing up files, Whiting further discloses the differences between a file and its version in the previous backup may be computed so that only the changes to the file need to be written on the backup storage means (Whiting, Col. 5, lines 3-26). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by including the step of replacing an existing version by replacing the association with a data item in order to back up file to a backup storage means.

Regarding claim 20, Farber teaches all the claim subject matters as discussed above with respect to claim 12, but fails to teach *the named objects further comprise version information associating different data items with different versions of the named object*. Whiting teaches a method for backing up files, Whiting further discloses *the named objects further comprise version information associating different data items with different versions of the named object* (Whiting, Col. 9, line 56-Col. 10, line 65). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by including the technique of version information in order to differentiate data.

Regarding claim 21, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 20, Farber further discloses *a backup of data items stored in the data repository is accomplished by preserving copies of the current versions of named objects in existence at the time of the backup* (Farber, Col. 36, Lines 42-55).

Regarding claim 22, Farber teaches all the claimed subject matters as discussed in claim 1, but fails to teach *records are kept of the association between data items and names in order to define named objects, and wherein data items recorded as being associated with named objects are not deleted from the repository, and wherein named objects are backed up by preserving copies of the named object records in existence at the time of the backup*. Whiting teaches a method for backing up files, Whiting further discloses *records are kept of the association between data items and names in order to define named objects, and wherein data items recorded as being associated with named objects are not deleted from the repository, and wherein named objects are backed up by preserving copies of the named object records in existence at the time of the backup* (Whiting, Col. 7, line 59-Col. 8, line 20). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by using the technique of defining named objects and preserving copies of the named objects in order to back up data.

Regarding claim 23, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 22, Whiting further discloses *a plurality of backups are made at spaced time intervals* (Whiting, Col. 1, lines 30-50).

Regarding claim 24, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 22, Whiting further discloses *the backup is accomplished by declaring that after a prescribed moment in time a new version of each named object will be created the first time that a new data item is associated with it* (Whiting, Col. 7, line 59-Col. 8, line 20).

Regarding claim 25, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 24, Whiting further discloses *the prescribed moment in time is determined separately for each named object* (Whiting, Col. 7, line 59-Col. 8, line 20).

Regarding claim 26, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 22, Whiting further discloses *named objects are preserved by creating a new version of each named object each time that a new data item is associated with it* (Whiting, Col. 8, lines 21-40).

Regarding claim 27, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 26, Whiting further discloses *versions of named objects that are deemed unnecessary are deleted* (Whiting, Col. 25, lines 9-39).

Regarding claim 28, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 27, Whiting further discloses *the determination of which versions of a named object to delete is based in whole or in part on the times at which the versions were created, and the intervals between these times* (Whiting, Col. 25, lines 9-39).

Regarding claim 29, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 20, Whiting further discloses the step of *preparing a digital time stamp of a plurality of named objects to allow a property of these named objects to be proven at a later date* (Whiting, Col. 12, lines 38-48).

Regarding claim 30, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 29, Whiting further discloses *a random or other difficult to guess element is incorporated into the time stamp hash for each named object, to prevent the property from being proven if this element is deleted* (Whiting, Col. 28, line 35-Col. 29, line 9).

Regarding claim 32, Farber teaches all the claimed subject matters as discussed in claim 12, but fails to disclose the step of *altering one or more properties or parameters associated with an access-authorization credential to change the access rights of a client or user to the data item referenced by that credential*. Whiting teaches a method for backing up files, Whiting further discloses the step of *altering one or more properties or parameters associated with an access-authorization credential to change the access rights of a client or user to the data item referenced by that credential* (Whiting, Col. 7, lines 32-58). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by including the step of altering one or more properties to change the access right in order to control access to the data.

Regarding claim 33, Farber teaches all the claimed subject matters as discussed in claim 1, but fails to disclose *a challenge step to ascertain that the client has the full data item*. Whiting teaches a method for backing up files, Whiting further discloses *a challenge step to ascertain that the client has the full data item* (Whiting, Col. 35, lines 8-63). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made

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to modify the Farber method by including a challenge step as taught by Whiting in order to control access to data.

Regarding claim 34, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 33, Whiting further discloses the step of *requiring that the client attempting to store a data item provide correct answers to inquiries as to the content of portions of the data item, or inquiries that require knowledge of this content* (Whiting, Col. 35, line 64-Col. 36, line 4).

Regarding claim 35, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 34, Whiting further discloses *the data item content on which the challenge is based is selected with a degree of randomness* (Whiting, Col. 35, line 64-Col. 36, line 4).

Regarding claim 36, Farber teaches all the claimed subject matters as discussed in claim 1, but fails to disclose *depositors use the client to stored data items in the repository, and at least some depositors are required to provide identification*. Whiting teaches a method for backing up files, Whiting further discloses *depositors use the client to stored data items in the repository, and at least some depositors are required to provide identification* (Whiting, Col. 35, lines 7-43). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by including the requiring identification of depositors to store data items in order to control access to data.

Regarding claim 37, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 36, Whiting further discloses *rules for when a depositor must provide identification are selected in order to discourage unlawful distribution of access to the data item* (Whiting, Col. 35, lines 7-43).

Regarding claim 38, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 37, Whiting further discloses *there is a greater degree of user identification or a higher likelihood that user identification will be required when the data item being stored by the depositor has been indicated to be shareable with other users* (Whiting, Col. 28, line 35-Col. 29, line 10).

Regarding claim 39, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 37, Whiting further discloses *a class of data items the items may only be shared if the depositor has provided adequate identification* (Whiting, Col. 28, line 35-Col. 29, line 10).

Regarding claim 47, Farber teaches all the claimed subject matters as discussed in claim 1, but fails to disclose *the client has a directory structure for the data items, the data items are stored in the repository, and the directory structure is not evident to the repository maintainers*. Whiting teaches a method for backing up files, Whiting further discloses *the client has a directory structure for the data items, the data items are stored in the repository, and the directory structure is not evident to the repository maintainers* (Whiting, Col. 4, lines 19-45). Therefore, it would have been

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obvious for one of ordinary skill in the art at the time the invention was made to modify the Shnelvar method by including a directory structure for data items in order to back up data.

Regarding claim 52, Farber teaches all the claimed subject matters as discussed in claim 10, but fails to disclose *the access –authorization credential is determined in part by computing a hash involving elements of the pathname for a file on the client computer*. Whiting teaches a method for backing up files, Whiting further discloses *the access –authorization credential is determined in part by computing a hash involving elements of the pathname for a file on the client computer* (Whiting, Col. 15, line 58-Col. 16, line 17). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by using the technique of computing a hash involving the pathname in order to back up image dataset.

Regarding claim 53, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 52, Whiting further discloses *the path name hash is made unique to a client by introducing a reproducible but randomly chosen element into it* (Whiting, Col. 15, lines 58-Col. 16, line 17).

Regarding claim 57, Farber teaches all the claimed subject matters as discussed in claim 56, but fails to disclose *when transmitting a composite data-item, the client uses fingerprints to avoid retransmitting components following loss of communication*. Whiting teaches a method for

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backing up files, Whiting further discloses *when transmitting a composite data-item, the client uses fingerprints to avoid retransmitting components following loss of communication* (Whiting, Col. 5, lines 3-34). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by using fingerprint to avoid retransmitting in order to reduce the network bandwidth.

Regarding claim 58, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 57, Farber further discloses *the index data-item is encrypted with a key that is only made available to the repository at the moment of access* (Col. 16, Lines 39-45).

Regarding claim 154, Farber teaches all the claimed subject matters as discussed in claim 1, but does not disclose the step of *encrypting the data item using a key derived form the content of the data item*. Whiting teaches a method for backing up files, Whiting further discloses the step of *encrypting the data item using a key derived form the content of the data item* (Whiting, Col. 26, line 66-Col. 27, line 6, and Col. 28, lines 35-65). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to include the step of encrypting as taught by Whiting in order to secure the transferring data.

Regarding claim 155, Farber teaches all the claimed subject matters as discussed in claim 1, but does not disclose the step of *encrypting the data item using a key*

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derived from the content of the data item. Whiting teaches a method for backing up files, Whiting further discloses the step of *encrypting the data item using a key derived from the content of the data item* (Whiting, Col. 26, Line 66-Col. 27, Line 6, and Col. 28, Lines 35-65). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to include the step of encrypting as taught by Whiting in order to secure the transferring data.

Regarding claim 156, Farber teaches all the claimed subject matters as discussed in claim 1, but does not explicitly disclose *the data items are widely circulated non--electronic media such as books or music, and the method further comprises converting the widely circulated non-electronic media to a standardized electronic version; storing the standardized electronic version as a data item in the repository; promoting the availability of the standardized electronic version to users with the right to have access, whereby the likelihood of the data repository storing multiple, slightly-different electronic versions of the non-electronic media is reduced.* However, the technique of promoting the electronic data item to user with the right to have access is taught by Whiting (Col. 26, Line 66-Col. 27, Line 6, and Col. 28, Lines 35-65). A non-electronic media such as books could be converted to a standardized electronic version by using a conventional method such as directly typing or scanning and saving the data in a repository under word perfect for example in order to standardized the file, obviously, will reduce the likelihood of different version. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber technique by converting a non-electric media to a standardized electronic version and having access right in order to reduce the storage space of book in paper version and secure the data item.

Regarding claim 7, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 154, Whiting further discloses *the key derived from the content of the data item is the same for all instances of the data item stored in the repository* (Whiting, Col. 26, Line 66-Col. 27, Line 6, and Col. 28, Lines 35-65).

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791], as applied to claim 12, and further in view of Garthwaite et al. [USP 6,415,302 B1].

Regarding claim 31, Farber teaches all the claimed subject matters as discussed in claim 12, but fails to disclose the step of *determining that a data item stored in the data repository is not referenced by any named object, and reusing the storage space used to store the unreferenced data item*. Garthwaite teaches a garbage collection method by *determining that a data item stored in the data repository is not referenced by any named object, and reusing the storage space used to store the unreferenced data item* (Garthwaite, Col. 5, line 14-Col. 6, line 8). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by using the garbage collection method as taught by Garthwaite in order to free unused memory.

Claims 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791], Whiting et al. [USP 5,778,395], as applied to claim 38 above, and further in view of Ho [USP 6,148,342].

Regarding claim 40, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 38, but fail to disclose *identity information about the depositor is made available to anyone able to access the data item, to discourage unlawful sharing*. Ho teaches a method for managing sensitive data and further discloses *identity information about the depositor is made available to anyone able to access the data item*. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber and Whiting method by including the step of disclosing the identity information to discourage unlawful sharing in order to prevent unauthorized access to data.

Regarding claim 41, Farber, Whiting, and Ho, in combination, teach all of the claimed subject matter as discussed above with respect to claim 40, Whiting further discloses *the identity information is stored in an encrypted form that the depositor and users subsequently accessing the shared data item can both read* (Whiting, Col. 28, lines 36-65).

Regarding claim 42, Farber, Whiting, and Ho, in combination, teach all of the claimed subject matter as discussed above with respect to claim 41, Whiting further discloses *the repository is not able to decrypt the identity information about the depositor* (Whiting, Col. 29, lines 10-21).

Claims 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791], Whiting et al. [USP 5,778,395], as applied to claim 37, and further in view of Deo [USP 5,594,227].

Regarding claim 43, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 37, but fail to disclose *the identity of some users has not been well verified, but restrictions are placed on sharing of data item deposited by such poorly verified users*. Deo teaches a method for protecting against unauthorized access of data contents by denying access to data contents on a smart card (Deo, FIG. 7) as the *identity of some users has not been well verified, but restrictions are placed on sharing of data item deposited by such poorly verified users*. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber and Whiting method by using the technique of placing restriction on data deposited by poorly verified users in order to control access to data.

Regarding claim 44, Farber, Whiting and Deo teaches all the claimed subject matters as discussed in claim 43, Deo further discloses the step of *limiting access to data items deposited by a poorly verified user* (Deo, FIG. 7).

Regarding claim 45, Farber, Whiting and Deo teaches all the claimed subject matters as discussed in claim 44, Deo further discloses *the limited access is provided by limiting the aggregate bandwidth provided for such accesses* (Deo, FIG. 7).

Regarding claim 46, Farber, Whiting and Deo teaches all the claimed subject matters as discussed in claim 44, Deo further discloses *the limited access is provided by limiting the number of simultaneous accesses to the data items* (Deo, FIG. 7).

Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791] as applied to claim 48, and further in view of Dobbek [USP 6,308,325 B1].

Regarding claim 49, Farber teaches all the claimed subject matters as discussed in claim 48, but fails to disclose *mirroring software is downloaded to the client using a bootstrap process, wherein a small bootstrap program is downloaded and executed, and the bootstrap program manages download and installation of the remainder of the mirroring software*. Dobbek teaches a method for downloading data, Dobbek further discloses *mirroring software is downloaded to the client using a bootstrap process, wherein a small bootstrap program is downloaded and executed, and the bootstrap program manages download and installation of the remainder of the mirroring software* (Dobbek, Col. 5, line 60-Col. 6, line 40, and Col. 2, lines 23-43). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by downloading a bootstrap process for managing downloading and installing the software in order to have a software to control back up data.

Claims 59 and 186 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791], as applied to claim 55 above, and further in view of Kuzma [USP 5,781,901].

Regarding claim 59, Farber teaches all the claimed subject matters as discussed in claim 55, but fails to disclose *an email message is broken up into component items in such a manner that the individual attachments are separate component data-items*. Kuzma teaches a method for transmitting email attachments from a sender to a receiver of a network. Kuzma further discloses *the email message is broken up into component items in such a manner that the individual attachments are separate component data-items* (Kuzma, Col. 4, line 65-Col. 5, line 65). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by using the technique of breaking an email into component items based on attachment in order to secure the message.

Regarding claim 186, Farber teaches all the claim subject matters as discussed above with respect to claim 185, but does not teach *structured data item comprises an e-mail message and the content dependent boundaries are the divisions between email attachments*. Kuzma teaches a method for transmitting email attachments from a sender to a receiver of a network. Kuzma further discloses the email message is broken up into component items in such a manner that the individual attachments are separate component data-items (Kuzma, Col. 4, line 65-Col. 5, line 65). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by applying the process as illustrated at Col. 14, Lines 13-31 for breaking an email based on attachment in order to secure the message.

Claims 62, 63 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791], as applied to claim 1, and further in view of Thomlinson et al. [USP 6,532,542 B1].

Regarding claim 62, Farber teaches all the claimed subject matters as discussed in claim 1, Farber fails to disclose *an access identifier is formed to provide proof of ownership of the data item stored in the repository, the access identifier is formed by producing a one-way hash including item-identifying information chosen by the client program to identify the data item, and the one-way hash cannot be reversed to permit the repository to discover the identity of the client program or user*. Thomlinson teaches a method to provide central storage for data items. Thomlinson further discloses *an access identifier is formed to provide proof of ownership of the data item stored in the repository, the access identifier is formed by producing a one-way hash including item-identifying information chosen by the client program to identify the data item, and the one-way hash cannot be reversed to permit the repository to discover the identity of the client program or user* (Thomlinson, Col. 10, line 43-Col. 11, line 32 and Col. 7, lines 45-67). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber method by using a one-way hash to produce password as access identifier in order to control access to data.

Regarding claim 63, Farber and Thomlinson, in combination, teach all of the claimed subject matter as discussed above with respect to claim 62, Thomlinson further discloses *the item-identifying information is associated with the data item on the client* (Thomlinson, FIG. 3).

Regarding claim 65, Farber and Thomlinson, in combination, teach all of the claimed subject matter as discussed above with respect to claim 62, Thomlinson further discloses *user-identifying information is provided to the repository as part of the access-authorization credential* (Thomlinson, FIG. 3).

Claims 64, 66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791], Thomlinson et al. [USP 6,532,542 B1] as applied to claim 63, and further in view of Whiting et al. [USP 5,778,395].

Regarding claim 64, Farber and Thomlinson teaches all the claimed subject matters as discussed in claim 63, but fail to disclose *the item-identifying information is derived at least in part from the path name of the data item on the client*. Whiting teaches a method for backing up files, Whiting further discloses *the item-identifying information is derived at least in part from the path name of the data item on the client* (Whiting, Col. 15, line 58-Col. 16, line 17). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber and Thomlinson method by using the technique of computing a hash involving the pathname in order to back up image dataset.

Regarding claim 66, Farber and Thomlinson, in combination, teach all of the claimed subject matter as discussed above with respect to claim 65, but fail to disclose *at least some access-authorization credentials can be transferred between users without the use of the repository*.

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Whiting teaches a method for backing up files, Whiting further discloses *at least some access-authorization credentials can be transferred between users without the use of the repository* (Whiting, Col. 28, lines 35-65). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber and Thomlinson method by using the technique of transferring access-authorization credentials as taught by Whiting in order to back up data in a share file server.

Regarding claim 67, Farber and Thomlinson, in combination, teach all of the claimed subject matter as discussed above with respect to claim 65, but fail to disclose *at least one class of users is not permitted to transfer access using access-authorization credentials*. Whiting teaches a method for backing up files, Whiting further discloses *at least one class of users is not permitted to transfer access using access-authorization credentials* (Whiting, Col. 29, lines 1-9). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Farber and Thomlinson method restricting one class of users for transferring access as taught by Whiting in order to protect the privacy of the data.

Claim 157 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791] as applied to claim 48, and further in view of the Admission [Background].

Regarding claim 157, Farber teaches all the claimed subject matters as discussed in claim 48, Farber further discloses *a mirroring capability for a personal computer* (FIG. 1A, Col. 36, Lines 42-54), but not to teach the claimed *mirroring software with instructions for carrying out the aforesaid steps is preconfigured on the personal computer upon purchase*. In the background is an amount of fee for providing a combination of PC software and networked storage space that allows users to keep a copy of their most important data remotely from some company. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to impose a fee on the users who use the system in order to maintain the system.

Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791], Whiting et al. [USP 5,778,395], as applied to claim 154, and further in view of the Admission [Background].

Regarding claim 4, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to 154, but does not disclose *the encrypting of the data item is performed by the client prior to transmitting the data item to the data repository*. In the background is the technique of performing the encrypting of the data item prior to transmitting (Background). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to encrypt the data prior to transmitting in order to secure the data item.

Regarding claim 5, Farber, Whiting and the Admission, in combination, teach all of the claimed subject matter as discussed above with respect to claim 4, Whiting further discloses the step of *encrypting the key and storing the encrypted key* (Whiting, Col. 26, line 66-Col. 27, line 6, and Col. 28, lines 35-65).

Regarding claim 6, Farber, Whiting and the Admission, in combination, teach all of the claimed subject matter as discussed above with respect to claim 5, Whiting further discloses *a client or user specific key is used to encrypt the key derived from the content of the data item* (Whiting, Col. 26, Line 66-Col. 27, Line 6, and Col. 28, Lines 35-65).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791], Whiting et al. [USP 5,778,395], as applied to claim 154, and further in view of Pond et al. [USP 4,864,616].

Regarding claim 8, Farber and Whiting, in combination, teach all of the claimed subject matter as discussed above with respect to claim 154, but fails to disclose *users of the method are grouped into families, and the key derived from the content of the data item is the same for all instances of the data item stored in the repository by users in the same family, but may be different for users in different families*. Pond teaches a method of cryptographically labeling electronically stored data and further discloses *users of the method are grouped into families, and the key derived from the content of the data item is the same for all instances of the data item stored in the repository by users in the same family, but may be different for users in different families* (Summary, Col. 2-4). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made

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to modify the Farber and Whiting method by grouping the users into families and using the same key for users in the same family as taught by Pond in order to control access to data.

Claim 179 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. [USP 5,978,791], as applied to claim 1, and further in view of Tridgell et al. [The Rsync Algorithm].


Regarding claim 179, Farber teaches all of the claimed subject matter as discussed above with respect to claim 1, but does not explicitly teach the step of *transmitting over the network the digital fingerprint of the second data item than the second data item itself*. Tridgell teaches an algorithm for updating a file on one computer to be identical to a file on another computer. Tridgell further discloses the step of *transmitting over the network the digital fingerprint of the second data item than the second data item itself*. It would have been obvious for one of ordinary skill in the art at the time the invention was made to include the step of transmitting the digital fingerprint for comparing before sending the real data in order to update a file but only the data items that are not found in the updating file.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG Q. PHAM whose telephone number is 571-272-4040. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JEFFREY A. GAFFIN can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


HUNG Q PHAM
Examiner
Art Unit 2168

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